ABSTRACT

ENERGY GRADIENT ION BEAM DEPOSITION OF CARBON OVERCOATS ON RIGID DISK MEDIA FOR MAGNETIC RECORDINGS

In the energy gradient ion beam deposition technique of the present invention, the fabrication of the overcoat layer starts with a low energy ion beam to avoid magnetic layer implantation problems, followed by higher deposition energies where the higher energy atoms are implanted into the previously formed lower energy overcoat layer, rather than the magnetic layer. The energy gradient ion beam deposition process therefore results in a thin overcoat layer that is denser than a comparable layer formed by low energy magnetron sputtering, and which overcoat layer provides good mechanical and corrosion protection to the magnetic layer, without degrading the magnetic properties of the magnetic layer. Where a magnetic media hard disk of the present invention is utilized within a hard disk drive, the thinner overcoat layer allows the magnetic head of the disk drive to fly closer to the magnetic media layer, thereby facilitating an increase in the areal data storage density of the hard disk drive.